

R E M A R K S

Applicant has carefully considered the Office Action of March 21, 2004 rejecting claims 1-7, 10, 11, 14-21, and 23 and objecting to claims 8, 9, 12, 13, and 22.

Applicant wishes to express his appreciation to the Examiner for the early indication of allowable subject matter.

The present response is intended to fully address all points of objection raised by the Examiner, and is believed to place the application in condition for allowance. Favorable reconsideration and allowance of the application are respectfully requested.

Claim 1 has been amended.

Therefore, claims 1-23 remain in the case.

Applicant wishes to remind the Examiner that in the corresponding PCT international stage application, a favorable IPER was issued for all twenty-three claims.

The present invention discloses an improved method of producing a screen for use in a screen printing process. The screen is formed from a woven thread having a net-like structure of holes. The screen is coated with a photosensitive coating that permits aqueous-based inkjet ink to be deposited evenly on its surface and remain in liquid condition. Digital image information is printed onto the photosensitive coating of the screen using a UV-blocking aqueous-based inkjet ink via an ink-jet printer. This forms an image structure having exposed and unexposed areas of photosensitive coating. The photosensitive coating is flood-cured such that the resulting exposed areas of the photosensitive coating are cured while unexposed areas of the photosensitive coating are blocked from UV curing.

The photosensitive coating then is washed so that the UV-blocking ink and the unexposed image structure areas

are removed and the remaining cured areas of the photosensitive coating form a mask on the screen for use in the screen printing process.

Claim 1 has been amended to more clearly define the scope of the present invention.

The Examiner has rejected claims 1-7, 10, 11, 14-21, and 23 under Sec. 102(b) as being anticipated by Agnew et al.

The Applicant believes that the Examiner has misunderstood the difference between relief image printing plates and printing screens. As it is well known in the art, screen printing differs significantly from relief printing. The screen printing process uses a porous mesh stretched tightly over a frame made of wood or metal. Proper tension is essential to accurate color registration. The mesh is made of porous fabric or stainless steel mesh. A stencil is produced on the screen either manually or photochemically.

Screen printing ink is applied to the substrate by placing the screen over the substrate. Ink with a paint-like consistency is placed onto the top of the screen. Ink is then forced through the fine mesh openings using a squeegee that is drawn across the screen, applying pressure thereby forcing the ink through the open areas of the screen. Ink will pass through only in areas where no stencil is applied, thus forming an image on the printing substrate.

In relief printing, the image or printing area is raised above the non-image areas. Relief printing plates may be used for flexographic or letterpress printing. Flexographic printing plates are relief plates with image elements raised above open areas. The plate is somewhat soft, and flexible enough to wrap around a printing cylinder, and may be durable enough to print over a

million copies. A flexographic plate is multilayered with a backing, a support layer, a photocurable layer, a protective layer, and a cover layer.

The present invention provides a method for the production of a digitally imaged screen for use in a screen printing process. The invention uses a woven screen with a single photopolymer layer.

Agnew describes a method for production of relief image printing plates. The support or backing layer of the plate is formed from a transparent or opaque material such as paper, cellulose film, plastic, or metal, as per page 4, lines 26-28 of Agnew. Unless it was specifically designed in the form of a porous screen (which is not suggested), such a support layer would not be suitable for use in the present invention. In addition to the plate support, the Agnew plate preferably comprises additional layers, including, one or more photocurable layers, a removable cover sheet, a protective layer (as per page 4, lines 20-25, and Figure 1, of Agnew) and an adhesive (as per page 4, lines 30-32).

The photocurable layer of the relief image plates of Agnew preferably comprises an elastomer compound, per page 5, line 2 of Agnew. The elastomer compound enables the plate to be used in flexographic printing since in flexographic printing, the plate has to be mounted around a print cylinder, and must have sufficient elasticity to accommodate the cylinder and to withstand the stress of continuous printing. The raised image area must be flexible enough so as to press against a variety of printing substrates. Elongation, tensile strength, and resilience, are thus of utmost importance for flexographic printing plates, and there are numerous references relating to flexographic plates having optimum values for the aforementioned properties. As an example, U.S. Patent No.

5,223,375, incorporated by reference in Agnew, discloses various formulations that may be used to obtain good resilience and elongation in flexographic plates.

The coatings used on the screen mesh in screen printing must have no elastomeric quality, since this would cause the pores in the screen to stretch, and thus the image would be distorted. Any of the aforementioned properties would be ruinous to the screen printing process.

The Examiner has stated that the composition described by Agnew comprises hydroxypropyl cellulose, a photoinitiator, and solvents, as well as other conventional additives. In the present invention, hydroxypropyl cellulose is incorporated directly into the photosensitive coating of the sheet. By contrast, in Agnew, hydroxypropyl cellulose is provided as an option for use in the ink-accepting slip film, as per page 9, lines 33-35. The slip-film, also described on page 5, lines 27-32, is a non-photosensitive layer that is disposed on the photocurable layer and that acts as an ink-accepting layer.

The present invention is limited to aqueous-based ink-jet inks, as per claim 1. In Agnew, the preferred inks are solvent-based, and preferably include one or more radiation-absorptive molecules, as per page 8, lines 2-5. After deposition, the ink is dried by evaporation of the volatile solvent or by solidification in the case of phase change inks. After the ink mask is used by flood-exposing the plate with UV light, the image areas are washed out. No mention is made of any difficulties in removing the dry mask after flood-exposure, except to point out that inks are useful so long as they can be removed by subsequent washing, without damaging the surface of the plate.


It is respectfully put forward by the Applicant that there is no reason to consider the Agnew prior art as anticipating the invention.

In summary, the present invention describes a method for producing a screen for use in a screen printing process. By contrast, Agnew describes a relief plate for use in a flexographic printing process. Screen printing and flexographic printing use different materials and have different plate production and printing conditions. The present invention employs a woven screen having a single photopolymer layer thereon. Agnew describes a multilayered plate. Whereas Agnew described certain compounds which are added in order to give the plate optimal elastomeric properties, the screen printing process could not work if the screen were to be afforded with the same properties. The present invention uses only aqueous-based ink-jet inks while Agnew uses solvent-based or phase change inks.

As stated in the decision in *In Re Marshall*, 198 USPQ 344 (1978), "To constitute an anticipation, all material elements recited in a claim must be found in one unit of prior art...". Since Agnew neither 1) identically describes the invention, nor 2) enables one skilled in the art to practice it, Applicant deems the 102(b) rejection improper, and respectfully requests that it be withdrawn.

In view of the foregoing remarks, all of the claims in the application are deemed to be allowable. Further reconsideration and allowance of the application is respectfully requested at an early date.

Respectfully submitted,



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